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Creative Computing Buyer's Guide to Personal Computers and Peripherals

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Video Technology VZ200 Personal Computer

The VZ200 with 16K RAM memory pack.

David H. Ahl

The Video Technology VZ200 is a compact microcomputer with a great deal of capability and many unexpected features at a very attractive price.

The VZ200 is based on the 6502 microprocessor, the same one found in the Apple, Commodore, and Atari computers. The 12K ROM memory includes the monitor and an excellent implementation of Microsoft Basic.

The RAM memory included with the basic unit is a sparse 4K. Two plug-in expansion modules are available, one with 16K and the other with 64K. These modules plug into a slot on the back of the computer and extend out about 5.5″.

The computer itself measures 11.4″ x 6.3″ x 2″. Two-thirds of the top surface is occupied by a keyboard with 45 keys in four rows. The keys are "Chiclet" style rubber and have a very short throw. Touch typing is possible in only a rather limited way. Although key spacing is the same as on a regular typewriter, the rubberized keys have a different "feel." Much more disastrous for touch typing is the fact that there is no space bar; instead a space key is found at the right end of the bottom row next to the period. This also means that there is only one shift key (at the left end of the bottom row). Several other keys do not have the expected characters; for example the question mark is on the L key.

On the bright side, each key on the VZ200 keyboard provides several functions in addition to typing a single letter, number, or symbol. All the Basic commands, keywords, and functions can be produced by holding down the control key (or control and RETURN keys) while the key is pressed. This is most welcome. Most other computers which produce Basic keywords with a single keystroke can produce only as many words as there are keys, i.e., one keyword per key. Each key on the VZ200, in contrast, produces two Basic keywords and one or two regular characters. Sixteen graphics characters can also be produced directly from the keyboard.

All the Basic commands, keywords, and functions can be produced with a single keystroke.

When a key is pressed, it makes a short "beep" indicating one keystroke. If it is held down, it automatically repeats with a beep indicating each key entry.

The top of the computer also has an on/off light. An on/off switch is recessed on the right side of the case.

The Basic Language

As mentioned earlier, the VZ200 has an excellent implementation of Microsoft Basic. This includes 9 commands, 27 statements, 11 arithmetic functions, 9 string functions, 7 graphics and sound functions, and the expected arithmetic, relational and Boolean operators.

Among the statements that we do not always see in a computer in this price range are INP (reads the contents of input ports), OUT (sends values to output ports), USR (calls an assembly language subroutine), and COPY (copies the content of the screen onto a printer). Naturally, for the COPY command to work, you must use a printer which recognizes the VZ200 screen codes, in particular, a Seikosha GP-100 or GP-100A.

We were also pleased to find both PRINT USING and PRINT @ implemented. The latter command is useful to print things at different screen locations without having to use blank print lines or tabs. However, a tab function is available for programs that require it.

On-Screen Editing

Full on-screen editing makes it a pleasure to program on the VZ200. To edit a line of code, it is not necessary to invoke an EDIT command or remember a set of editing commands as one must do on the TRS-80 Color Computer and many others. Instead, on the VZ200, the line to be edited is listed, by itself, with the whole program or with a group of lines. By using the four directional keys on the bottom right of the keyboard, the cursor is moved to the character to be changed. You type the change, move the cursor to the end of the line (remember, a key repeats by holding it down), and type RETURN. Voila! The change is made. On-screen editing can also use the DELETE, INSERT, and RUBOUT keys.

Four I/O connectors and two plug-in slots are on the back.

We experienced two small problems with on-screen editing. First, the cursor directional keys are activated by pressing the control key on the left and one of the directional keys on the right. It was all too easy to hit the shift key instead of the control key, but this is probably something that one gets used to after using the computer for a few days. The other problem was that after a while the editing buffer seems to overflow and further editing is not accepted. Admittedly, we were trying to push the computer over the brink and it is unlikely that this will be a problem in normal use.

Video Display

The VZ200 produces two forms of video output: a composite video signal for a monitor and an RF signal on Channels 2 or 3 for a standard NTSC TV set. We found the monitor signal rock steady, whereas the RF signal required very precise fine tuning of our TV set. Even on the monitor, we found that to produce the correct colors, the tint control had to be turned to one extreme.

Output from the VZ200 is in one of two modes: low-resolution text and graphics or medium-resolution graphics only. In the mixed mode, the VZ200 produces 16 lines of 32 characters each. Alphabetic characters are available in uppercase only. Also available are 16 graphics characters which divide each screen location into four boxes. The 16 characters are, of course, all combinations of these boxes being filled in.

Each low-resolution graphics character can be turned on in any of eight colors; the off portion shows as black which can be considered a ninth color. Alphanumeric characters are displayed either as yellow on green or yellow on buff (actually a red-orange). Text can also be displayed in inverse—either individual characters or the entire screen. Only one background color can be used on the screen at a time, green or buff. The background color does not affect the color of graphics characters.

Low-resolution graphics characters can be typed into programs directly from the keyboard or called with CHR$ (128) to CHR$ (255) from a program.

In medium-resolution graphics mode, the screen is divided into 128 x 64 pixels (actually, small boxes). Each pixel is turned on by the command SET (x,y). The command RESET (x,y) turns off a pixel, and POINT (x,y) examines whether a pixel is on or off. The first two commands are equivalent to PSET and PRESET in some other computers. Figure 1 is a listing of a simple program using these commands to make a bouncing ball leave a kaleidoscopic trail around the screen.

```
10 CLS:PRINT "KALEIDOSCOPE  BY
DAVE AHL":PRINT
20 X=1: Y=1: XU=126: YU=62: Z=1
30 INPUT "ENTER 1,2, OR 3";I
40 I=.5*I: J=1
50 MODE (1)                          Set hi-res graphics mode
60 X=X+I                             Compute new x and y
70 Y=Y+J                             position
80 COLOR (RND(8))
90 IF X>=XU OR X<=Z THEN I=-I:       Tests to see if edge of
SOUND 30,1                           screen has been reached.
100 IF Y>=YU OR Y<=Z THEN J=-J:      If so, reverse direction
SOUND 27,1                           of bounce.
110 SET (X,Y)                        Draw new spot
120 GOTO 60
```

Figure 1. Program produces a kaleidoscopic pattern of eight colors on the screen. The input parameter changes the incremental amount added to each successive horizontal or X position. Each time the leading edge of the pattern hits a border of the screen, a beep tone is sounded.

In this graphics mode, only three colors plus the background color (four in total) are available simultaneously.

In addition to SET and RESET, screen locations can also be changed and examined by means of POKE and PEEK statements. Of course, these statements allow changing and examining any RAM memory location, not just the screen locations.

Musical Sounds

The SOUND command is simple and straightforward. The single sound channel on the VZ200 can produce 31 frequencies (2-½ octaves) and nine note durations (from a dotted half note to a thirty-second note). The command takes the structure SOUND (p,d) where p is the pitch (1 to 31 and 0 for a rest) and d is the duration.

Problems

Speaking of pushing the computer to the brink, we found several things from which there was no way to recover short of turning the computer off. Even BREAK (the equivalent of RESET on some other machines) failed to return control of the computer to the user. The most common irrecoverable condition was LLIST. This would normally list a program on the line printer. However, if no line printer is attached, the computer hangs. This is particularly bad because the rubberized keys tend to bounce a bit and it is very easy to type LLIST instead of just plain LIST. If you have a long program in the computer and have to turn it off because it hangs up as we did four or five times, you are forgiven if you become a bit surly toward the machine.

The surest cure is to use Control/4 to list a program. After a while, we learned to do this.

Other things that would hang the machine are all in the same family, in particular, trying to use a peripheral device that is not attached. In some cases, the VZ200 gave an error message, but in some others it went into never-never land.

We also had a problem loading the programs from the cassette tape included with the computer. We tried three recorders, including a high-quality digital unit, but the only thing the VZ200 would say was "FOUND T: Program Name" and that was it. We saw the programs load at CES, so we assume we got a faulty demo tape with our system.

Peripherals

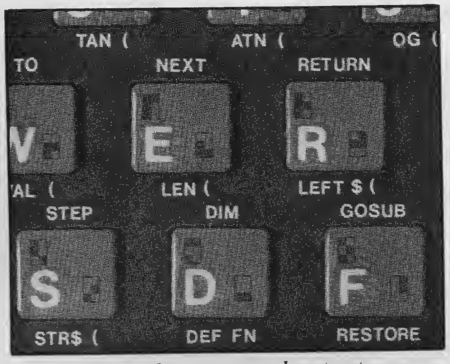
The VZ200 has an interface to a stan-

dard cassette recorder which operates at a Baud rate of 600 bps. This is somewhat slower than other new computers which have rates up to 2400 bps; nevertheless it is twice a fast as machines of just a few years ago. A program that fills the entire 4K of memory with program code takes about 54 seconds to load; a 16K program takes four minutes to load. Bear in mind, however, that most 16K programs do not use 16K of code; much of the memory space is taken by dimensioned arrays and the like.

The manufacturer specifications note that a peripheral expansion bus is built-in, however, we are not quite sure what this means. It appears that expansion modules, which, presumably, can be connected to printers, modems, or other external devices, can be plugged into the back of the computer.

As mentioned earlier, the V-Tech printer is a Seikosha unit which we have previously found to be a satisfactory, cost effective printer. It requires an interface module which measures 5.5" x 2" and plugs into the interface bus on the back of the computer. Since the Seikosha printer uses a standard Centronics parallel signal, presumably other printers with similar signal requirements could be used, although they will probably not reproduce screen graphics correctly.

At CES, V-Tech was showing a nifty, low-cost four-color printer/plotter. We had hoped to bring you a review of it but couldn't lay our hands on one in time to review it in this guide.



Each key produces several outputs.

Documentation

Included with the computer are a 149-page Basic Reference Manual, a 24-page booklet of 21 Basic Application Programs, and an 8-page User Manual describing how to set up the system.

While some of the documentation obviously shows its Chinese (Hong Kong) heritage, the majority is well-written, if not awfully well-edited. The Basic manual provides a good introduction to the rudiments of the language although some of the example programs leave something to be desired (the one to illustrate arrays is particularly bad). POKE and PEEK are explained in only the most cursory way, and we have no idea what the "New Characters Code" chart on Page 104 is for. Also, sadly lacking is an index; it is something that is very useful in a reference manual.

On the other hand, the manual is as good as most and better than many. It is just a shame that documentation is the weak spot of so many otherwise-excellent computers.

Summary

All in all, the Video Technology folks in Hong Kong have done an excellent job producing a versatile small computer. We are impressed with the excellent implementation of Microsoft Basic, full on-screen editing, repeat keys, and easy-to-use graphics features. The idiosyncrasies were a bit annoying, but owners will get used to them and will probably not notice them after a week or two of operation. Bottom line: the VZ200 is a great value for the suggested price of under $100.

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